

Notice of Allowability

Application No.

10/047,995

Applicant(s)

BROWN ELLIOTT, CANDICE
HELLEN

Examiner

Nitin Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/10/2006.
2. ☒ The allowed claim(s) is/are 1, 3-6, 8-13, 15-22, 78-79, 81-82 now renumbered 1, 2-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 5-15-2002
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Nitin Patel
NITIN I. PATEL
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Stuart P. Kaler on 5/11/2007.

3. The application has been amended as follows:

a) **Claim 1 has been replaced with following amended claim 1.**

A method of doubling the addressability and increasing the modulation transfer function of a display displaying images as a plurality of red pixels, green pixels and blue pixels comprising:

offsetting said green pixels from said red pixels and said blue pixels by at least one-half of the dimension of one of said red pixels in at least a first direction; and

subpixel rendering input image data into output image data is displayed as a set of logical pixels upon said display; wherein the display is a projector and said offsetting is composed optically.

b) Claim 2 has been cancelled.

c) **Claim 6 has been replaced with following amended claim 6.**

A method of doubling the addressability and increasing the modulation transfer function of a display displaying images as a plurality of red pixels, green pixels and blue pixels, comprising:

offsetting said red pixels, said green pixels and said blue pixels by at least one third of the dimension of one of said pixels in at least a first direction; and

subpixel rendering input image data into output image data such output image data is displayed as a set of logical pixels upon said display, wherein the display is a projector and said offsetting is completed optically.

d) Claim 7 has been cancelled.

e) **Claim 11 has been replaced with following amended claim 11.**

A method for forming a multipixel image on an imaging surface, comprising:
projecting for each pixel in said multipixel image a plurality of monochrome beams of different colors towards said imaging surface; and

directing each of said plurality of monochrome beams for each said pixel along a beam path towards said imaging surface, wherein images formed on said imaging surface from each said beam are convergent by substantially less than about 100% of spatial convergence such that the number of independently addressable elements are increased; and

subpixel rendering input image data into output image data such that output image data is displayed as a set of logical pixels upon said display, wherein plurality of monochrome beams are light beams; and wherein said imaging surface is a projection screen.

f) Claim 14 has been cancelled.

g) **Claim 15 has been replaced with following amended claim 15.**

The method of claim 11, wherein directing each of said plurality of monochrome light beams is performed using optical elements.

h) **Claim 16 has been replaced with following amended claim 16.**

The method of claim 11, wherein said directing each of said plurality of monochrome light beams further placing an inclined plane lens in said beam paths.

i) **Claim 19 has been replaced with following amended claim 19.**

A method for forming a multipixel image on an imaging surface, comprising:
projecting for each pixel in said multipixel image a plurality of electron beams exciting phosphors of different colors towards said imaging surface; and

directing each of said plurality of monochrome beams for each said pixel along a beam path towards said imaging surface, wherein images formed on said imaging surface from each said beam are convergent by substantially less than about 100% of spatial convergence and

subpixel rendering input image data such that output image data is displayed as a set of logical pixels upon said display, wherein a geometric center of each said electron beam lies along a locus of points describing a monotonic function.

j) **Claim 23 has been cancelled.**

k) **Claim 78 has been replaced with following amended claim 78.**

A method for forming a multipixel image on an imaging surface, comprising:
illuminating a multispectral light source;
projecting light from said multispectral light source towards a first panel including an x by y matrix of a first color subtractive pixels, a second panel including an x by y

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matrix of a second color subtractive pixels, and a third panel including an x by y matrix of a third color subtractive pixels for each pixel in said multipixel image, said panels are convergent by substantially less than about 100% of spatial convergence; and directing each of said plurality of light beams for each said pixel along a path towards said imaging surface, wherein images formed on said imaging surface from each said light beam; and

subpixel rendering input image data into output image data such that output image data is displayed as a set of logical pixels upon said display, wherein a geometric center of said first panel, said second panel, and said third panel lies along a locus of points describing a monotonic function.

l). Claim 80 has been cancelled.

REASON FO ALLOWANCE

4. Claims 1,3-6,8-13,15-22,78,79,81-82 is allowed. Claims 2,7,14,23,24-77,80 have been cancelled.

5. The following is an examiner's statement of reason for allowance:

The prior art fails to teach or suggest a method of doubling the addressability and increasing the modulation transfer function of a display displaying images as a plurality of red pixels, green pixels and blue pixels comprising:

offsetting said green pixels from said red pixels and said blue pixels by at least one-half of the dimension of one of said red pixels in at least a first direction; and

subpixel rendering input image data into output image data is displayed as a set of logical pixels upon said display, wherein the display is a projector and said offsetting is composed optically as claimed in claim 1.

The prior art fails to teach or suggest a method of doubling the addressability and increasing the modulation transfer function of a display displaying images as a plurality of red pixels, green pixels and blue pixels, comprising:

offsetting said red pixels, said green pixels and said blue pixels by at least one third of the dimension of one of said pixels in at least a first direction; and

subpixel rendering input image data into output image data such that output image data is displayed as a set of logical pixels upon said display, wherein the display is a projector and said offsetting is completed optically as claimed in claim 6.

The prior art fails to teach or suggest a method for forming a multipixel image on an imaging surface, comprising:

projecting for each pixel in said multipixel image a plurality of monochrome beams of different colors towards said imaging surface; and

directing each of said plurality of monochrome beams for each said pixel along a beam path towards said imaging surface, wherein images formed on said imaging surface from each said beam are convergent by substantially less than about 100% of spatial convergence such that the number of independently addressable elements are increased; and

subpixel rendering input image data into output image data such that output image data is displayed as a set of logical pixels upon said display, wherein plurality of

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monochrome beams are light beams; and wherein said imaging surface is a projection screen as claimed in claim 11.

The prior art fails to teach or suggest a method for forming a multipixel image on an imaging surface, comprising:

projecting for each pixel in said multipixel image a plurality of electron beams exciting phosphors of different colors towards said imaging surface; and

directing each of said plurality of monochrome beams for each said pixel along a beam path towards said imaging surface, wherein images formed on said imaging surface from each said beam are convergent by substantially less than about 100% of spatial convergence and

subpixel rendering input image data such that output image data is displayed as a set of logical pixels upon said display, wherein a geometric center of each said electron beam lies along a locus of points describing a monotonic function as claimed in claim 19.

The prior art fails to teach or suggest A method for forming a multipixel image on an imaging surface, comprising:

illuminating a multispectral light source;

projecting light from said multispectral light source towards a first panel including an x by y matrix of a first color subtractive pixels, a second panel including an x by y matrix of a second color subtractive pixels, and a third panel including an x by y matrix of a third color subtractive pixels for each pixel in said multipixel image, said panels are convergent by substantially less than about 100% of spatial convergence; and directing

each of said plurality of light beams for each said pixel along a path towards said imaging surface, wherein images formed on said imaging surface from each said light beam; and
subpixel rendering input image data into output image data such that output image data is displayed as a set of logical pixels upon said display, wherein a geometric center of said first panel, said second panel, and said third panel lies along a locus of points describing a monotonic function as claimed in claim 78.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Patel whose telephone number is 571-272-7677. The examiner can normally be reached on 8:00-5:00.

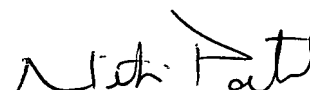
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin H. Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nitin Patel
Primary Examiner
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NP



NITIN I. PATEL
PRIMARY EXAMINER